CLAIMS:

1. An optical information storage unit comprising:

an information layer comprising a plurality of data areas, each data area being arranged to emit light when illuminated by light at a predetermined wavelength; and

a readout layer comprising a plurality of optical apertures, each optical aperture being arranged to image substantially only the near field of light emitted from a respective data area.

2. An information storage unit as claimed in claim 1, where both the readout layer and the information layer are planar and substantially parallel, the separation between the information layer and the readout layer being less than the wavelength of emitted light.

3. An information storage unit as claimed in claim 1 or claim 2, wherein the information layer is movable within a plane substantially parallel to the readout layer.

4. An information storage unit as claimed in any one of the above claims, wherein said information layer has a data areas per unit area, and said readout layer has b optical apertures per unit area, where a>b.

5. An information storage unit as claimed in any one of the above claims, wherein each data area comprises an optical aperture, the light emitted from each data area when illuminated corresponding to light transmitted through the aperture.

6. An information storage unit as claimed in any one of the above claims, wherein each data area comprises a reflector, the light emitted from each data area comprising light reflected from the reflector when the respective data area is illuminated.

7. An information storage unit as claimed in any one of the above claims, wherein each area comprises a fluorescent material, the light emitted from each data area

comprising the light emitted by the material as it fluoresces, the illuminating light acting to excite the fluorescent material.

8. An information storage unit as claimed in any one of the above claims, wherein an optically transmissive material is placed between the information layer and the readout layer, the optically transmissive material having a refractive index greater than 1 at the wavelength of the emitted light.

9. An optical information storage unit as claimed in any one of the above claims, wherein at least one of said data areas is modifiable by a predetermined process so as to alter the optical characteristics of the data area such that the intensity of light emitted by the data area when illuminated will be altered.

10. An information storage unit as claimed in any one of the above claims, the unit further comprising:
a light source arranged to provide light at the predetermined wavelength for illumination of the data areas; and
an optical sensor comprising a plurality of light sensing areas, the optical sensor being arranged to detect the near field of light imaged by each respective optical aperture.

11. A reader for an optical information storage unit, the reader being arranged to removably receive an optical information storage unit as claimed in any one of claims 1 to 9, the reader comprising:

a light source arranged to provide light at the predetermined wavelength for illumination of the data areas; and

an optical sensor comprising a plurality of light sensing areas, the optical sensor being arranged to detect the near field of light imaged by a respective optical aperture.

12. A reader as claimed in claim 11, further comprising writing means arranged to controllably alter the optical properties of the data areas, so as to write data to the data areas.

13. A reader as claimed in claim 11 or claim 12, further comprising movement means arranged to move the position of the information layer relative to the position of both the readout layer and the optical sensor.

14. An information processing system comprising at least one of:

an optical information storage unit as claimed in claim 10, and a reader as claimed in claim 11, claim 12 or claim 13.

15. A method of reading information from an optical information storage unit, the information storage unit comprising:

an information layer comprising a plurality of data areas, each data area being arranged to emit light when illuminated by the light at a predetermined wavelength; and a readout layer comprising a plurality of optical apertures, each optical aperture being arranged to image substantially only the near field of light emitted from a respective data area; the method comprising:

illuminating at least one data area with light at the predetermined wavelength; and

detecting the optical intensity of light imaged by the respective optical aperture that corresponds to the illuminated data area.

16. A method of reading information from an optical information storage unit as claimed in claim 15, the method further comprising the step of:

moving the information layer within a plane substantially parallel to the readout layer, such that an optical aperture previously imaging a first data area images a second, different data area within the information layer.

17. A method of manufacturing an optical information storage unit, the method comprising the steps of: providing an information layer comprising a plurality of data areas, each data area being arranged to emit light when illuminated by light at a predetermined wavelength; and

providing a readout layer comprising a plurality of optical apertures, the readout layer being located at a distance from the information layer such that each optical aperture is arranged to image substantially only the near field of light emitted from a respective data area.

18. A method of writing data to an optical information storage unit, the information storage unit comprising an information layer comprising a plurality of data areas,

each data being modifiable so as to emit light when illuminated by the light of predetermined wavelength, and a readout layer comprising a plurality of optical apertures, each optical aperture being arranged to image substantially only the near field light emitted from the respective data area; the method comprising:

selectively modifying at least one data area so as to emit light at a predetermined intensity when illuminated, the predetermined intensity being indicative of the information stored by the respective data area.

19. A method of manufacturing a reader for an optical information storage unit, the method comprising:

providing a locator unit arranged to removably receive an optical information storage unit as claimed in any one of claims 1 to 9;

providing a light source arranged to provide light at the predetermined wavelength for illumination of the data areas of the storage unit; and

providing an optical sensor comprising a plurality of light sensing areas, the optical sensor being arranged to detect the near field of light imaged by each respective optical aperture of the storage unit.